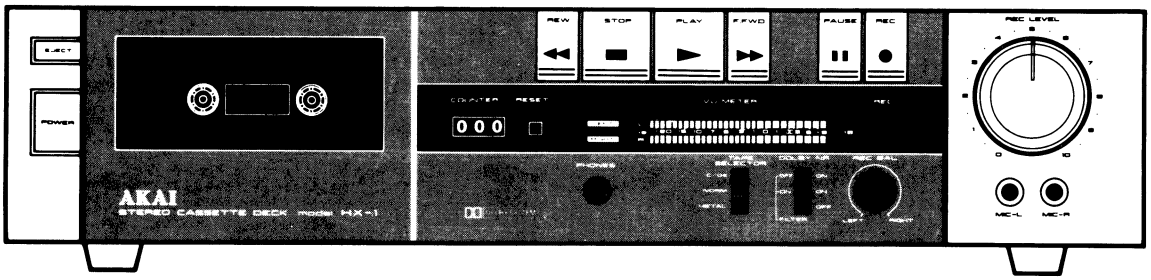
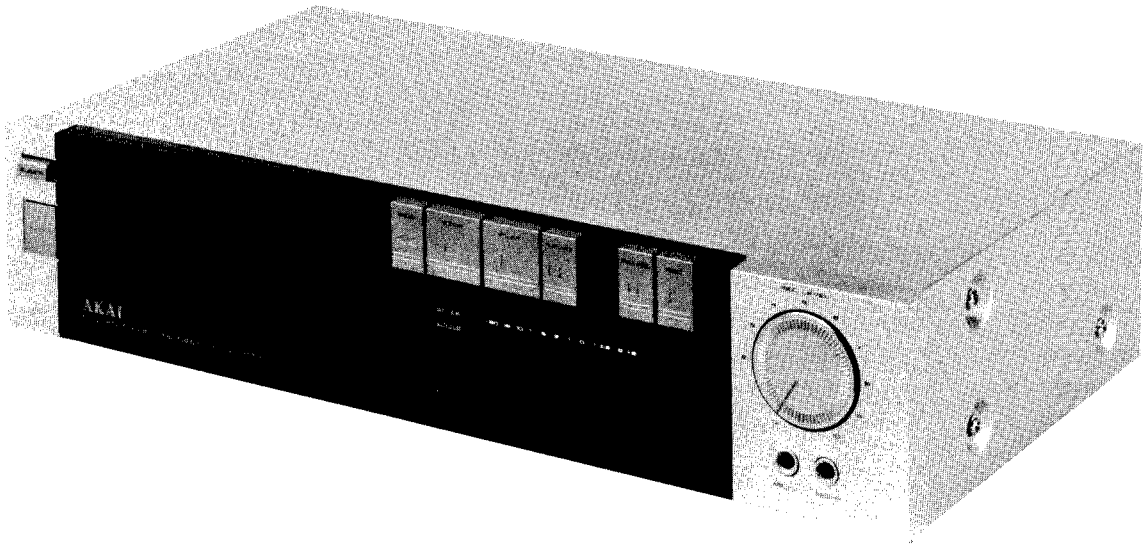
HX-1

AKAI SERVICE MANUAL



STEREO CASSETTE DECK

MODEL HX-1



STEREO CASSETTE DECK

MODEL HX-1

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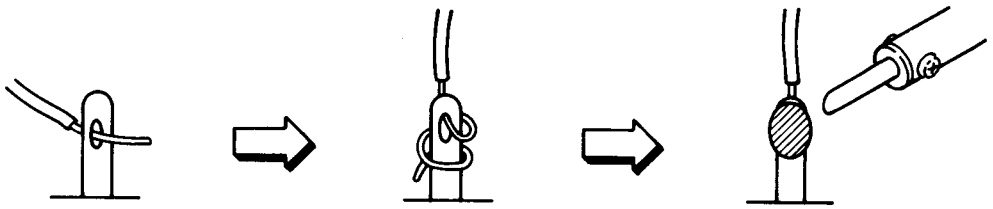
SAFETY CHECK AFTER SERVICING

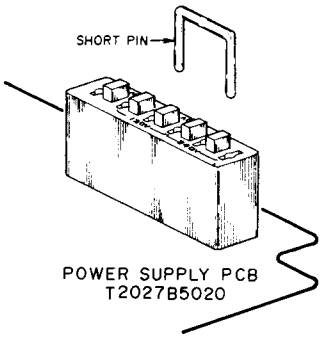
Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks. line-in-out jacks etc.)

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ symbol parts are critical for safety.
   Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.
10. Voltage Conversion
    Models for Canada, Europe, USA, UK and Australia are not equipped with this facility.
    Each machine is preset at the factory according to destination, but some machines can be set to 110V, 120V, 220V or 240V as required.
    If voltage change is necessary, this can be accomplished as follows:
    1) Disconnect power cord.
    2) Loosen holding screws and remove upper cover.
    3) Remove short pin plug from present holes and replace in correct holes. Follow the markings explicitly.



11. Cycle Conversion
    With DC motor, cycle conversion is not necessary.

SECTION 1

SERVICE MANUAL

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For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

I. SPECIFICATIONS

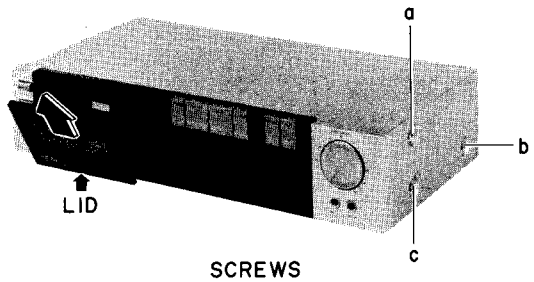
HEADS	Erase Head x 1 High Density Head for REC/P.B x 1
MOTOR	Electronically speed controlled DC motor for capstan drive x 1
WOW & FLUTTER	0.12% (DIN) 0.05% (WRMS)
FREQUENCY RESPONSE	Normal: 20 to 15,000 Hz ±3 dB CrO_2: 20 to 16,000 Hz ±3 dB Metal: 20 to 17,000 Hz ±3 dB
S/N	56 dB (measured via tape with peak recording level) Dolby NR switch ON: Improves up to 5 dB at 1 kHz, 10 dB above 5 kHz
DISTORTION	0.7% (Metal)
INPUT	Line: 70 mV/47 kohms MIC: 0.25 mV/5 kohms
OUTPUT	Line: 410 mV/1 kohms Phones: 0.3 mW/8 ohms
POWER CONSUMPTION	13W (U), 15W (C, A)
POWER REQUIREMENTS	120V, 60 Hz for USA and Canada 220V, 50 Hz for Europe except UK 240V, 50 Hz for UK and Australia 110V/120V/220V/240V, 50/60 Hz internally switchable for other countries
DIMENSIONS	440 (W) x 103 (H) x 233 (D) mm (17.3 x 4.1 x 9.2 inches)
WEIGHT	4.0 kg (8.8 lbs)

* **For improvement purposes, specifications and design are subject to change without notice.**
* **Noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the Double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.**

II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

1



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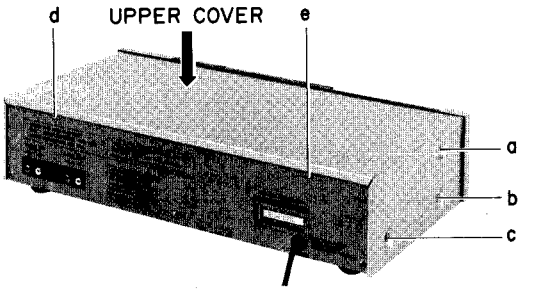

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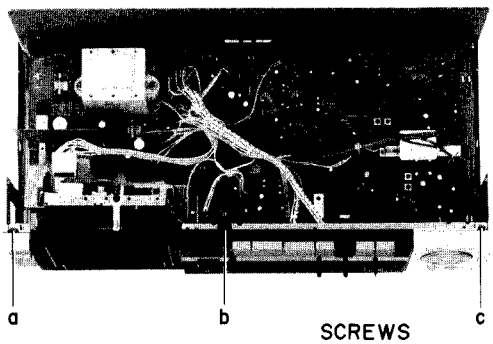
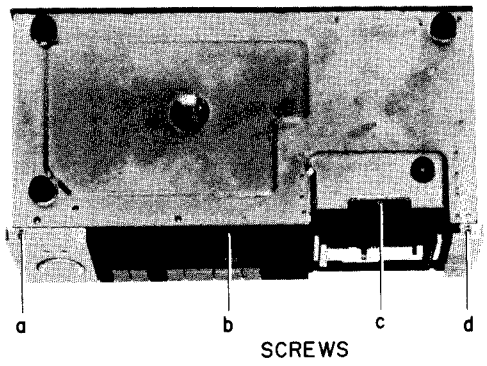
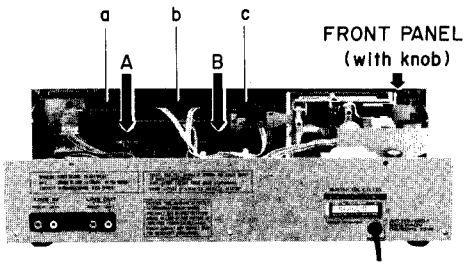


4

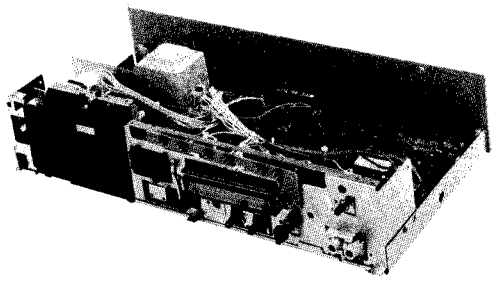


5



1) Take out screws a to c and then take Operation BLK out from FRONT PANEL.
2) Extended the tab(A,B) of FRONT PANEL and then take Bar Meter BLK out from FRONT PANEL.

6



III. CONTROLS

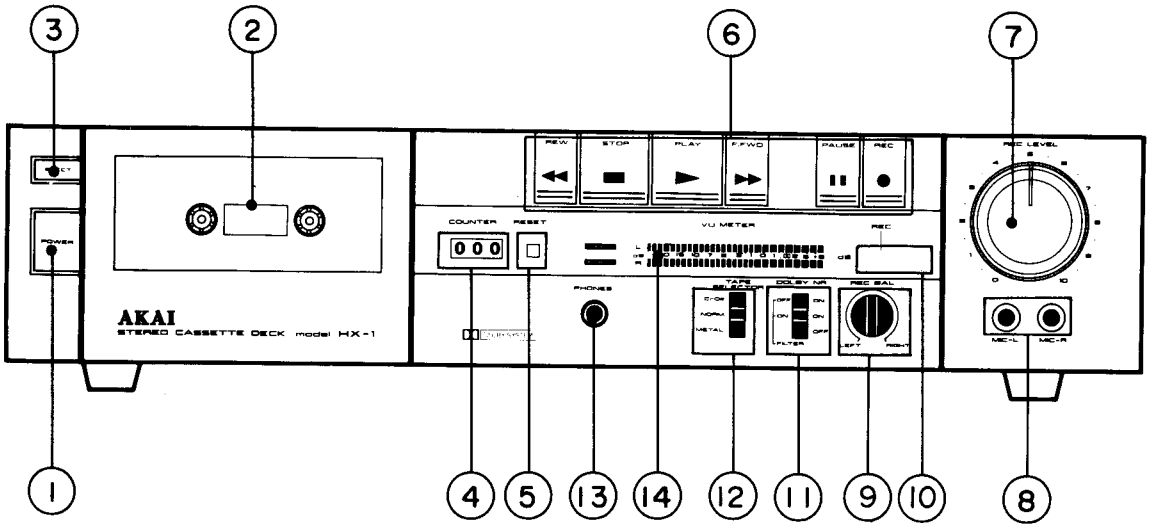


Fig. 3-1 Front View

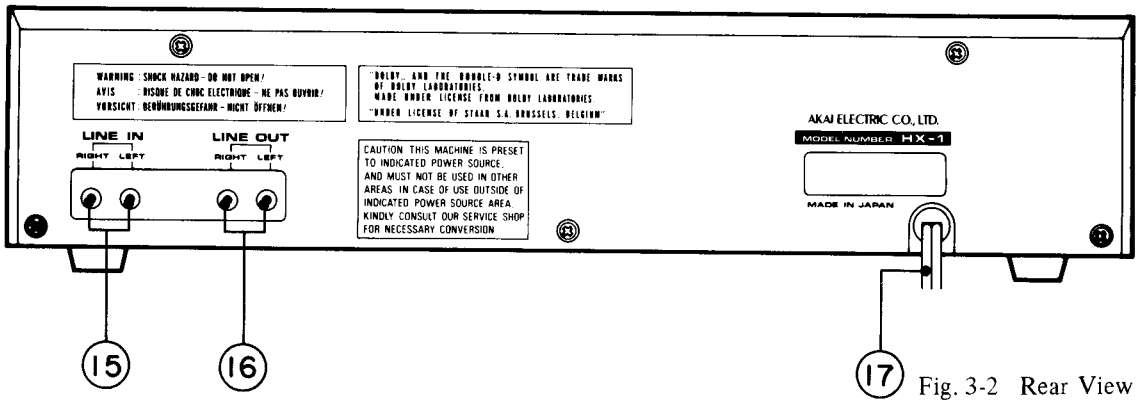

LINE IN
RIGHT LEFT
LINE OUT
RIGHT LEFT
CAUTION THIS MACHINE IS PRESET TO INDICATED POWER SOURCE AND MUST NOT BE USED IN OTHER AREAS IN CASE OF USE OUTSIDE OF INDICATED POWER SOURCE AREA KINDLY CONSULT OUR SERVICE SHOP FOR NECESSARY CONVERSION
AKAI ELECTRIC CO., LTD.
MODEL NUMBER HX-1
MADE IN JAPAN
15
16
17

Fig. 3-2 Rear View

1. POWER SWITCH
2. CASSETTE HOLDER
3. EJECT BUTTON
4. TAPE COUNTER
5. RESET BUTTON
6. OPERATION BUTTONS
7. REC LEVEL CONTROL
8. MIC JACKS (L/R)
9. REC BALANCE CONTROL
10. REC INDICATOR
11. DOLBY NR and FILTER SELECTOR
12. TAPE SELECTOR (CrO_2 /Normal/Metal)
13. PHONES JACK
14. VU METER
15. LINE IN JACKS
16. LINE OUT JACKS
17. AC POWER CORD

IV. PRINCIPAL PARTS LOCATION

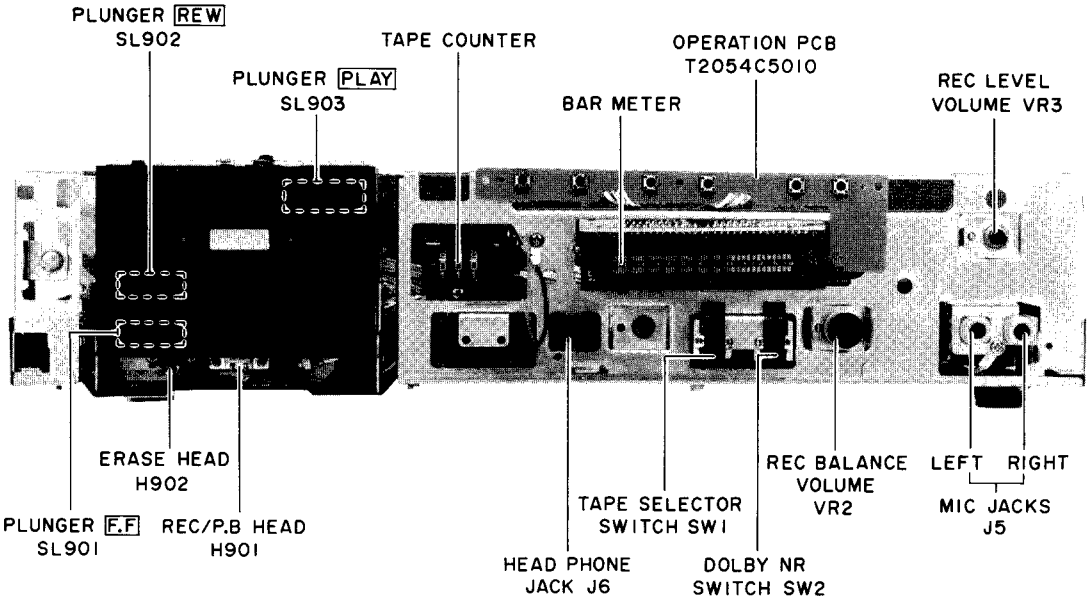


Fig. 4-1 Front View

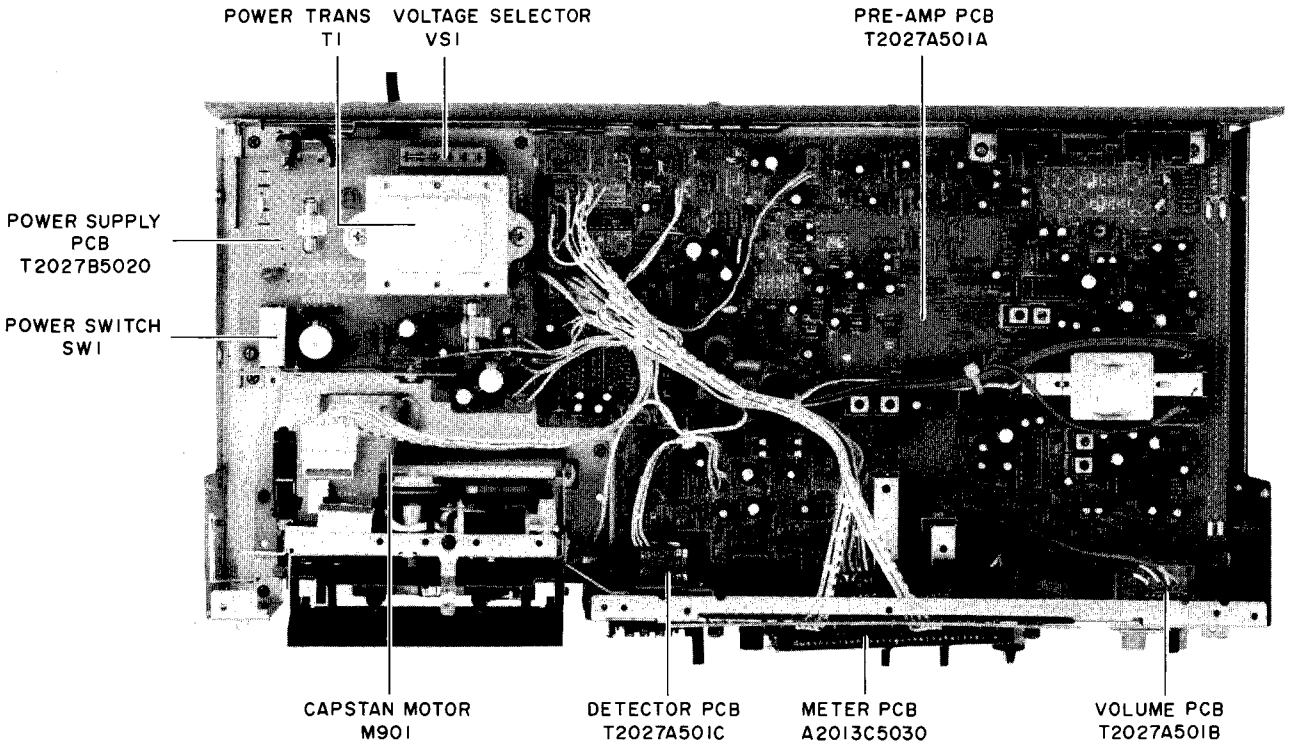


Fig. 4-2 Top View

V. MECHANICAL AND HEAD ADJUSTMENT

1. VARIOUS TORQUE MEASUREMENT

Use the Cassette Torque Meter (AT-751179) to confirm that the value of each mode is as follows:

Take up Torque : 35 to 70 g-cm
FF/REW Torque : 70 to 150 g-cm

2. TAPE SPEED ADJUSTMENT (Refer to Fig. 5-1)

Playback a 1,000 Hz pre-recorded test tape (AT-750774) or a 3,150 Hz Tape Speed Test Tape (AT-751263) and adjust the tape speed adjustment volume to obtain a tape speed of 1,000 Hz ± 5 Hz.

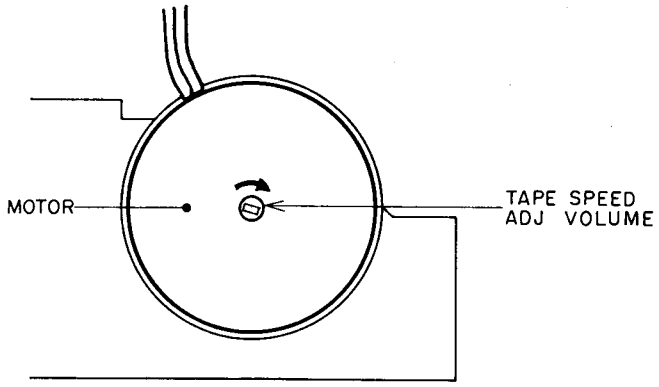


Fig. 5-1 Tape Speed Adjustment

3. RECORDING/PLAYBACK HEAD AZIMUTH ALIGNMENT (Refer to Fig. 5-2)

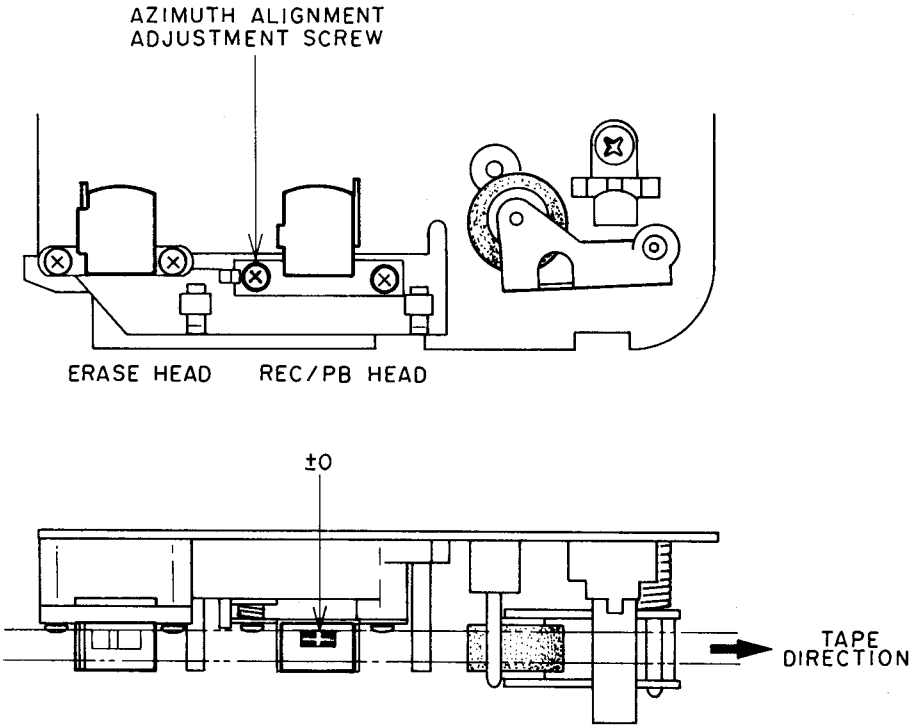


Fig. 5-2 Head Adjustment

a) Playback a 10 kHz pre-recorded cassette azimuth alignment test tape (AT-750778) and adjust screw shown in Fig. 5-2 to obtain maximum output on both channels.
b) Invert cassette and confirm that the output level does not change form that obtained in Item 3-a) above.
If the output level differs, adjust in the same way as in Item 3-a) above until both sides of the test tape display equal output.

NOTES:
1. Be sure to clean the heads prior to head adjustment.
2. Be careful not to use a magnetized driver or other magnetized tools in the vicinity of the heads.
3. Be sure to demagnetize the heads with a Head Demagnetizer before and after head adjustment.

VI. AMPLIFIER ADJUSTMENT

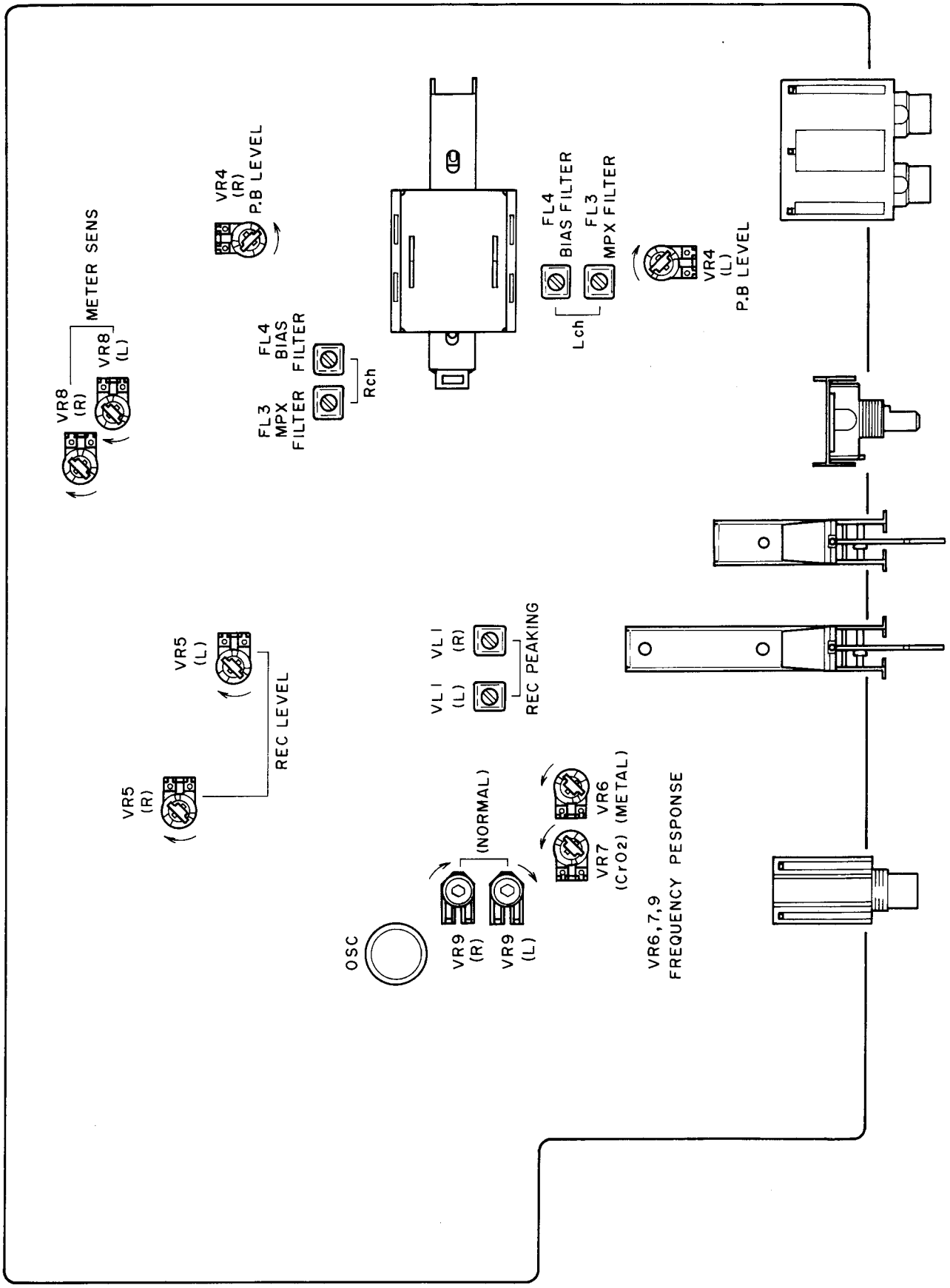


Fig. 6-1 Pre-Amplifier Adjustment Points

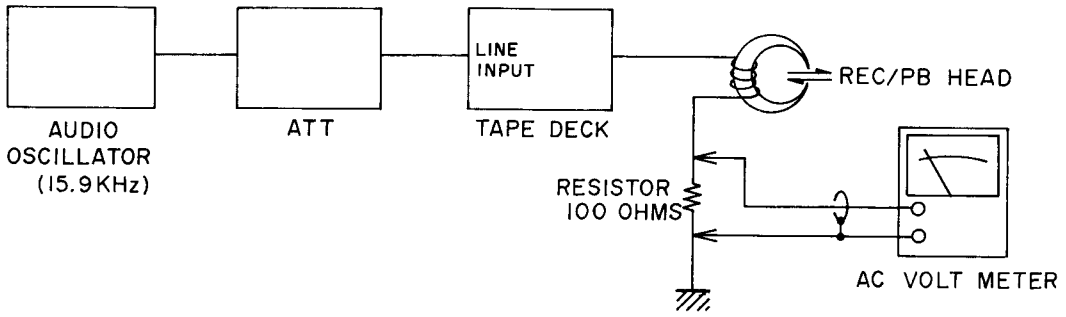
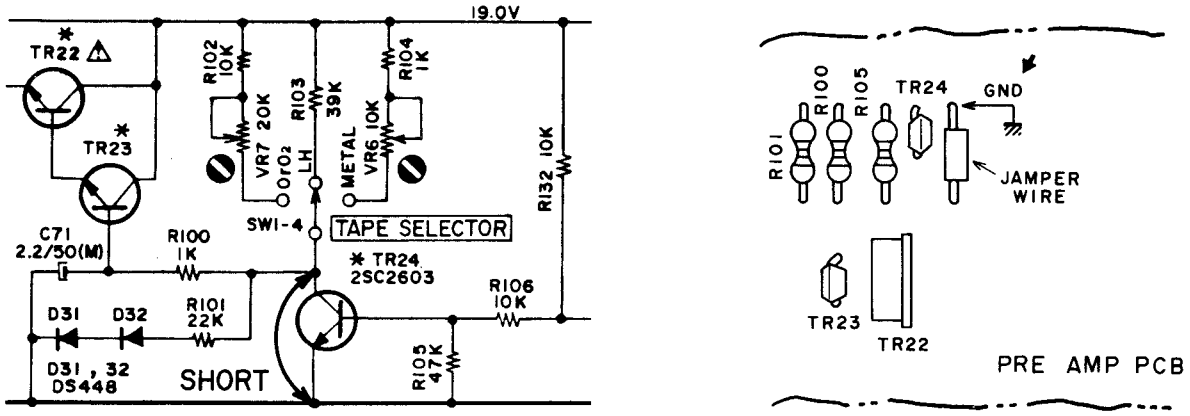


Fig. 6-2 Instruments Connection



(a) (b)

Fig. 6-3 How to Stop REC Bias Oscillation

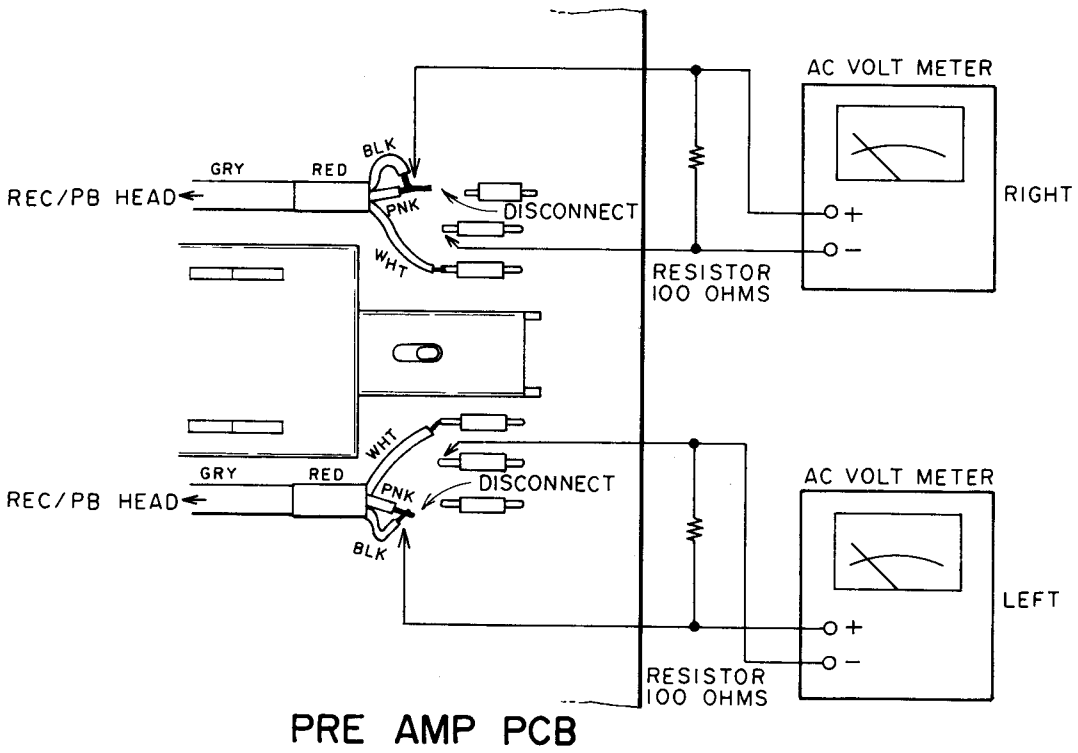


Fig. 6-4 REC Peaking Adjustment

Step	Adjustment Item	Test Tape Supply Signal	Mode	Adjustment Parts	Result	Remarks
1	P.B Level	315 Hz or 333 Hz	P.B	VR4	−5.5 ± 0.2 dBm or −6.1 ± 0.2 dBm	Set Tape Selector Switch to NORMAL Refer to NOTE 5.
2	REC Peaking	15.9 kHz from oscillator	REC	VL1	Maximum AC Voltmeter indication	Refer to NOTE 3, 4 and Figs. 6-3, 6-4.
3	Normal Position Frequency Response	Normal Blank Tape 1 kHz, 10 kHz −25.5 dBm	REC/PB	VR9	1 kHz to 10 kHz flat response	
4	CrO_2 Position Frequency Response	CrO_2 Blank Tape 1 kHz, 10 kHz −25.5 dBm	REC/PB	VR7	1 kHz to 10 kHz flat response	Set Tape Selector Switch to CrO_2.
5	Metal Position Frequency Response	Metal Blank Tape 1 kHz, 10 kHz −25.5 dBm	REC/PB	VR6	1 kHz to 10 kHz flat response	Set Tape Selector Switch to METAL.
6	REC Level	Normal Blank Tape 1 kHz, −5.5 dBm	REC/PB	VR5	−5.5 ± 0.5 dBm (410 mV)	Set Tape Selector Switch to NORMAL.
7	MPX Filter	19 kHz from oscillator	REC	FL3	Minimum Output	Set MPX Filter Switch to ON.
8	Bias Filter	No Signal Input	REC	FL4	Minimum Output	Set Tape Selector Switch to METAL. Set REC Volume to maximum.
9	Meter Sensitivity	1 kHz, −5.5 dBm from oscillator	REC	VR8	0 dB Indication	

NOTES: 1. Except for Step 7 set Dolby NR switch to OFF Position.

2. Use the following cassette measuring tapes:

   NORMAL Tape : Maxell UD C-60
   CrO_2 Tape : TDK SA C-60
   METAL Tape : TDK MA C-60

3. Stop the recording bias oscillator while making record peaking adjustment.
4. Unless the core is moved unintentionally this adjustment is not necessary.
5. As the test tape has been changed set to −6.1 ± 0.2 dBm when using 333 Hz test tape. For details, refer to Service Guide (No. 0012) issued in NOV., 1982.

VII. DC RESISTANCE OF VARIOUS COILS

Description	DC Resistance
REC/P.B Head	210 ohms ± 20%
Erase Head	3.5 ohms
Plunger Solenoid (FF. REW. PLAY)	75 ohms ± 10%

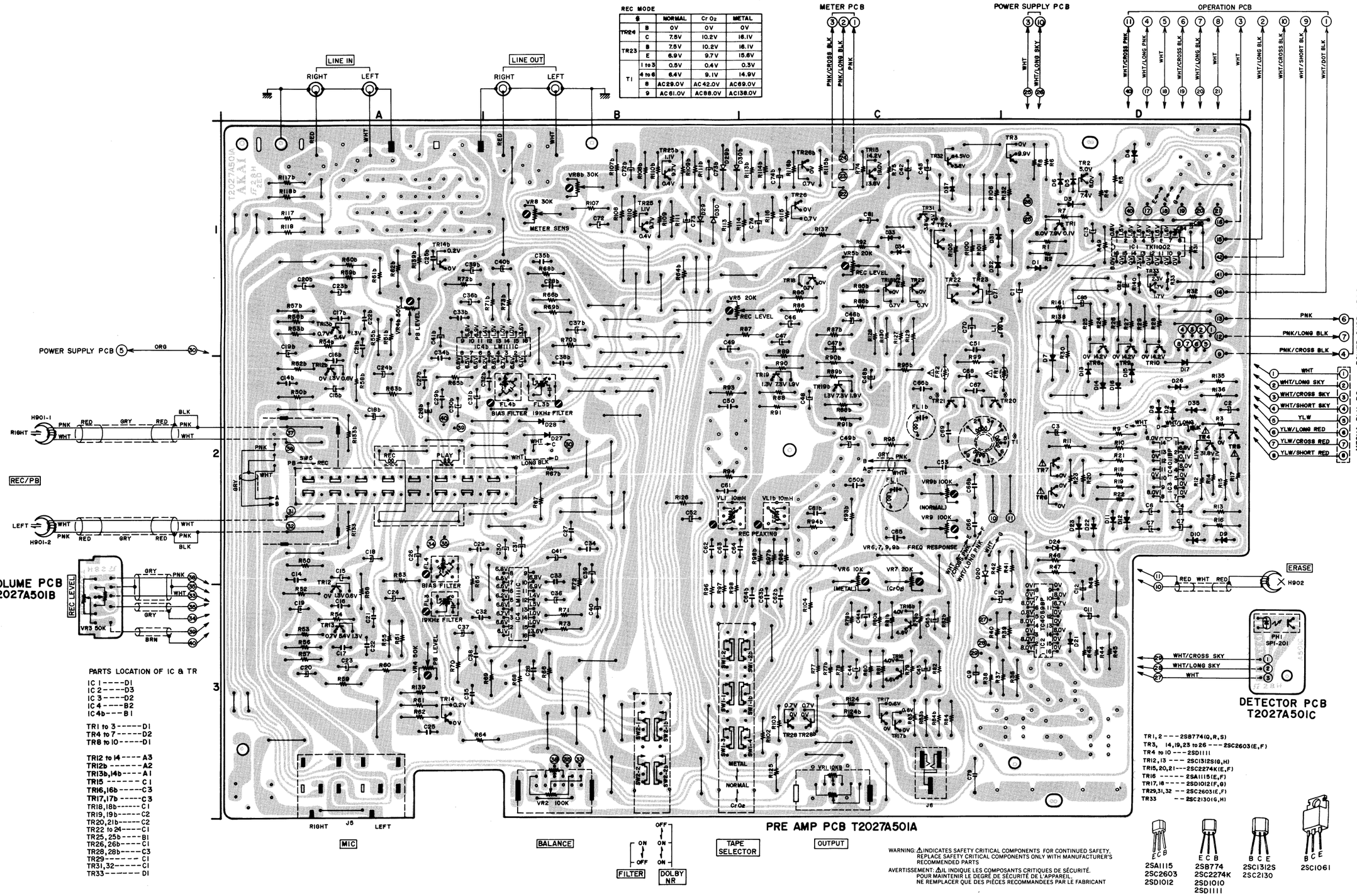
VIII. CLASSIFICATION OF VARIOUS P.C BOARDS

1. P.C BOARD TITLES AND IDENTIFICATION NUMBER

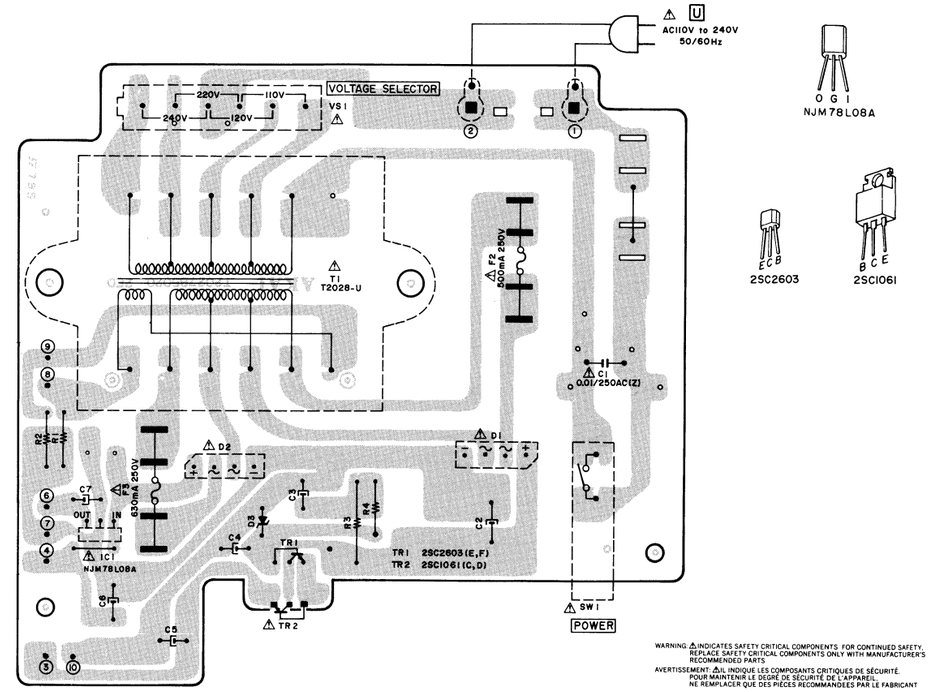
P.C Board Title	P.C Board Number
Pre-Amp P.C Board	T2027A501A
Volume P.C Board	T2027A501B
Detector P.C Board	T2027A501C
Meter P.C Board	A2013C5030
Operation P.C Board	T2054C5010
Power Supply P.C Board	T2027B5020

2. COMPOSITION OF VARIOUS P.C BOARDS

1) PRE AMP P.C BOARD T2027A501A (2ED), VOLUME P.C BOARD T2027A501B and DETECTOR P.C BOARD T2027A501C

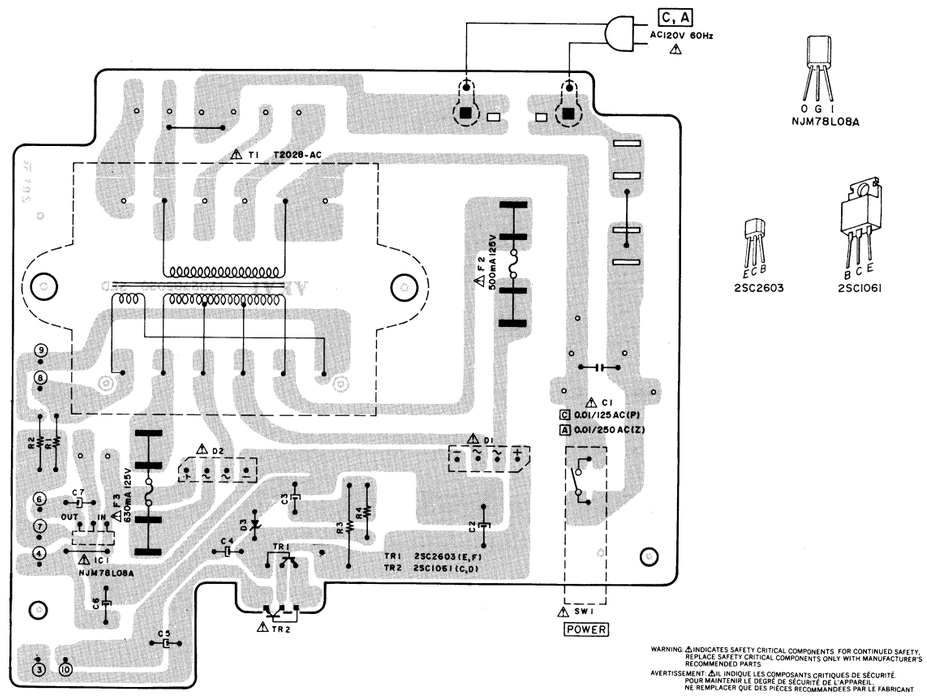


2) POWER SUPPLY P.C BOARD T2027B5020 (2ED) [U]



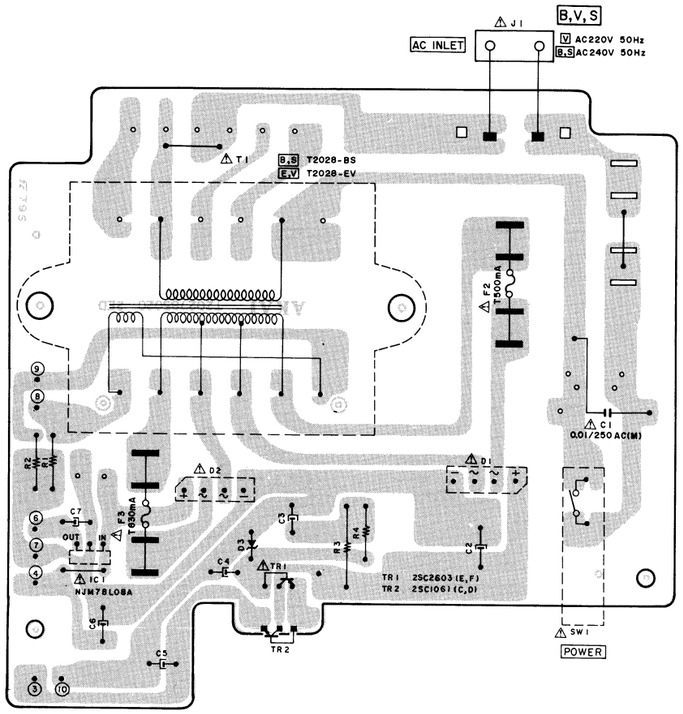
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

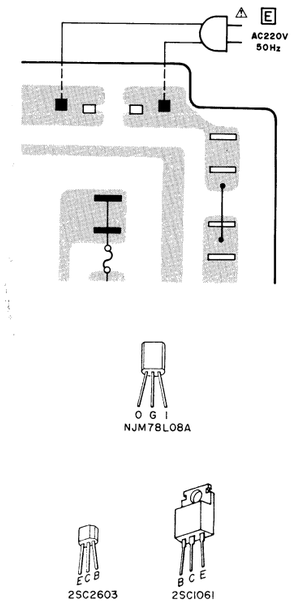
3) POWER SUPPLY P.C BOARD T2027B5020 (2ED) [C] [A]



WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

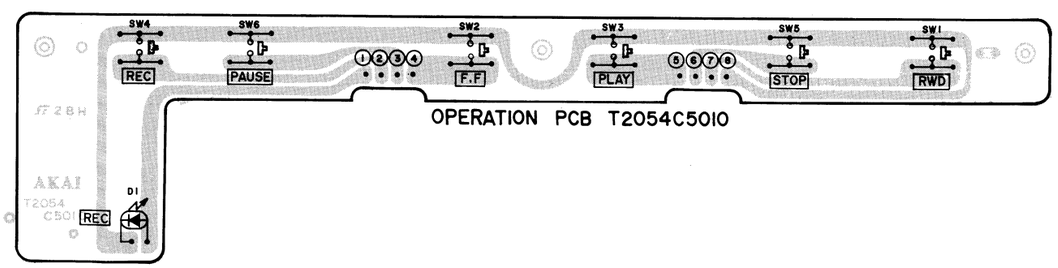
4) POWER SUPPLY P.C BOARD T2027B5020 (2ED) [E] [V] [B] [S]



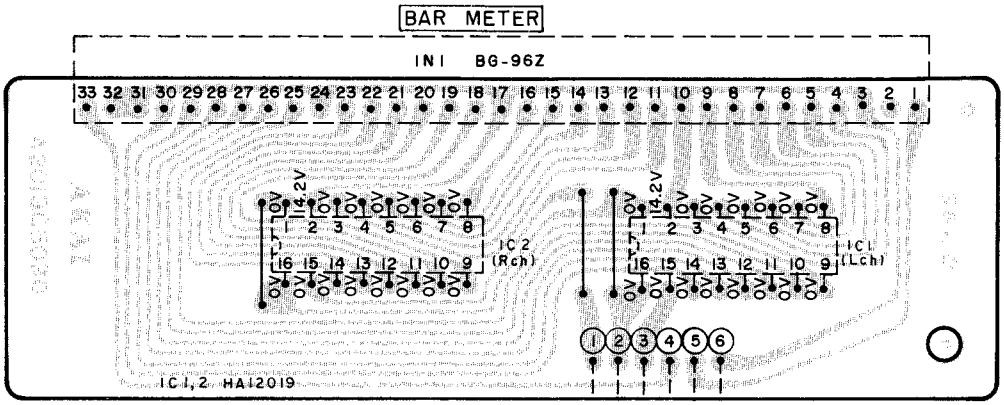


WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

5) OPERATION P.C BOARD T2054C5010



6) METER P.C BOARD A2013C5030



SECTION 2

PARTS LIST

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2. PRE AMP P.C BOARD BLOCK 21
3. OPERATION P.C BOARD BLOCK 21
4. METER P.C BOARD BLOCK 21
5. POWER SUPPLY P.C BOARD BLOCK 21
6. ASSEMBLY BLOCK 22
7. FINAL ASSEMBLY BLOCK 23
INDEX 24

Resistor and Capacitor which is not listed in this parts list, please refer to COMMON LIST FOR SERVICE PARTS.

ATTENTION

1. When placing an order for parts, be sure to list the parts no. model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Parts List may be partially changed, please use this parts list for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List shows the parts that are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts". Select and order such parts from the "Common List for Service Parts".
2. The Recommended Spare Parts shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not be supplied in principle.
4. How to read list

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	CS ANGLE ADJUST SPRING

- SP (Service Parts) Classification
- A small "x" indicates the inability to show that particular part in the Photo or Illustration.
- This number corresponds with the individual parts index number in that figure
- This number corresponds with the Figure Number

b) P.C Board Block

6. SYS. CON. P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BA-T2034A070A	PC SYS CON BLK GX-F44R
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-IC3	EI-331661	IC SN7405N
6-IC4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ

- SP (Service Parts) Classification
- This reference numbers corresponds with symbol numbers of Schematic Diagrams.

5. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List. It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index.

WARNING

⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT

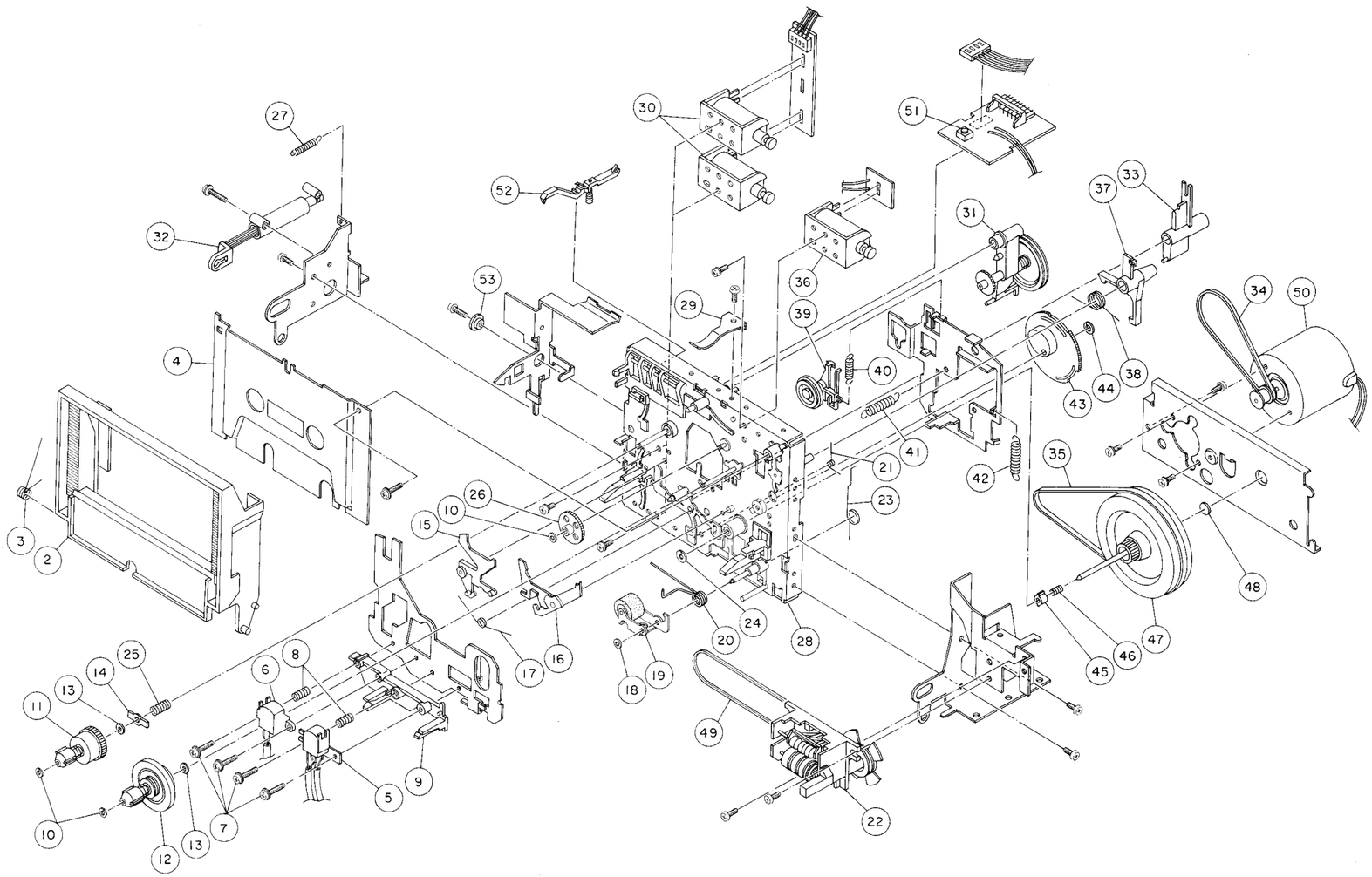
⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SURETE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.

1. RECOMMENDED SPARE PARTS

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

NO.	PARTS NO.	DESCRIPTION
1	BF-711770	FLYWHEEL ASSY
2	BL-711739	PINCH ROLLER ASSY
3	BM-711773	MOTOR ASSY
4	BR-711730	SUPPLY REEL ASSY
5	BR-711732	TAKE-UP REEL ASSY
6	BT-332230	⚠ TRANS POWER T2028 (B,S)
7	BT-332227	⚠ TRANS POWER T2028 (C,A)
8	BT-332229	⚠ TRANS POWER T2028 (E,V)
9	BT-332228	⚠ TRANS POWER T2028 (U)
10	ED-330319	⚠ D SILICON DBA10B 100/1.0A
11	ED-337779	⚠ D ZENER V HZ20S7 1
12	ED-328605	D GERMA H 1S188FM-1-LH S12
13	ED-322982	D GERMA V 1S188FM-1-LR F07
14	ED-310584	D LED GL9PR2 RED
15	ED-317594	D SILICON H 1S2473HL F12
16	ED-560913	D SILICON V 1S2473VE
17	ED-323979	D SILICON W03B F12 100/1.0A
18	EF-593706	⚠ FUSE SEMKO T 250V 0.50A (F2) (E,V,B,S)
19	EF-601942	⚠ FUSE SEMKO T 250V 0.63A (F3) (E,V,B,S)
20	EF-327103	⚠ FUSE TSC A 250V 0.50A (F2) (U)
21	EF-306124	⚠ FUSE TSC A 250V 0.63A (F3) (U)
22	EF-309390	⚠ FUSE TSC 125V 0.50A (F2) (C,A)
23	EF-305703	⚠ FUSE TSC 125V 0.63A (F3) (C,A)
24	EI-336759	⚠ IC TA78L008AP
25	EI-332425	IC TK11002
26	EI-315799	IC HA12019
27	EI-306009	IC LM1111AN/SL65651
28	EI-304657	IC TC4011BP
29	EI-305456	IC TC4049UBC
30	EJ-283140	⚠ SOCKET SELECTER X-I7238 6P (U ONLY)
31	EM-332427	IND FL BG-96Z GRAPH
32	EO-330239	COIL FIX 1 FL09H 390UH J
33	EO-332420	COIL OSC 1 0365-047 100KHZ
34	EO-315758	COIL TUN 1 100S-431 100KHZ
35	EO-321336	COIL VARI 1 FE002 10MH
36	EP-711751	SOLENOID ASSY
37	EP-711758	SOLENOID ASSY
38	ER-307565	⚠ R FUSE ERD2FC S10 1/4W 6R8J
39	ER-328490	FILTER DB D07-001K 19KHZ
40	ER-328491	FILTER DB D07-003K 100KHZ
41	ES-348998	⚠ SW PUSH SDL1P 01-1
42	ES-336781	SW LEVER 00430540 2-04-03S
43	ES-321274	SW LEVER 63349 2-06-03S
44	ES-332414	SW SOLENOID EMR-213007 30V 2S
45	ES-711774	SW TACT
46	ES-336780	SW TACT KHH10902
47	ET-317919	⚠ TR 2SC1061 C,D
48	ET-309353	⚠ TR 2SC2274K E,F
49	ET-332424	⚠ TR 2SD1111 AKAI
50	ET-311977	PHOTO SENSOR SPI-201
51	ET-309885	TR 2SA1115 F
52	ET-332422	TR 2SB774 Q,R,S
53	ET-603257	TR 2SC1312S G,H
54	ET-309334	TR 2SC458 C,D
55	ET-332421	TR 2SD1010 R,S
56	ET-328437	TR 2SD1012-V F,G
57	EV-342939	R S-FIX H H0811C313A 3P 103
58	EV-342941	R S-FIX H H0811C330A 3P 303
59	EV-342940	R S-FIX H H0811C344A 3P 203
60	EV-342942	R S-FIX H H0811C345A 3P 503
61	EV-338467	R S-FIX H TM8K 3P 0.30W 104
62	EV-336807	VR ROTARY 16P20×2K 1Z104
63	EV-348314	VR ROTARY 16P20×3C A503
64	HE-711725	HEAD E
65	HR-711724	HEAD R/P
66	MB-711772	BELT COUNTER
67	MB-711757	BELT MAIN
68	MB-706393	BELT SUB
69	MC-706413	COUNTER ME390-117
70	MI-711752	CLUTCH ASSY
71	MI-711761	IDLER ASSY

MECHA BLOCK



1. MECHA BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
1-1	BB-348278	MECHA BLK FHQ1-022
1-2	TC-706406	SUPPORT CASSETTE ASSY
1-3	ZG-706374	SP DOOR
1-4	SP-711723	LID DECORATION PLATE
1-5	HR-711724	HEAD R/P
1-6	HE-711725	HEAD E
1-7	ZS-711726	SCREW F LOCK
1-8	ZG-706378	SP AZIMUTH
1-9	HZ-711728	HEAD SPACER
1-10	ZW-711729	WASHER FIXATION
1-11	BR-711730	SUPPLY REEL ASSY
1-12	BR-711732	TAKE-UP REEL ASSY
1-13	ZW-711733	PW PSL
1-14	MT-711734	HOLDER SP
1-15	ML-711735	ARM BRAKE (L)
1-16	ML-711736	ARM BRAKE (R)
1-17	ZG-711737	SP TORTION BRAKE
1-18	ZW-711738	WASHER LOCK
1-19	BL-711739	PINCH ROLLER ASSY
1-20	ZG-711740	SP PINCH ROLLER
1-21	ZG-711741	SP CHANGE ARM
1-22	MC-706413	COUNTER ME390-117
1-23	ZG-711744	SP ASSIST
1-24	ZW-704947	OIL SEAL
1-25	ZG-711746	SP RACK TENSION
1-26	MI-711747	GEAR IDLE
1-27	ZG-711748	SP EJECT ARM
1-28	MA-711749	CHASSIS ASSY
1-29	ZG-711750	SP CASSETTE HOLD
1-30	EP-711751	SOLENOID ASSY
1-31	MI-711752	CLUTCH ASSY
1-32	TC-706398	DAMPER ASSY
1-33	ML-711755	ARM FR CHANGE
1-34	MB-706393	BELT SUB
1-35	MB-711757	BELT MAIN
1-36	EP-711758	SOLENOID ASSY
1-37	ML-711759	ARM PLAY
1-38	ZG-711760	SP PLAY ARM
1-39	MI-711761	IDLER ASSY
1-40	ZG-711762	SP IDLER
1-41	ZG-711763	SP HEAD BASE
1-42	ZG-711765	SP ASSIST BASE
1-43	MI-711766	GEAR PLAY
1-44	ZW-711767	WASHER LOCK
1-45	ZW-711768	COLLAR CR
1-46	ZG-711769	SP PUSH F/W
1-47	BF-711770	FLYWHEEL ASSY
1-48	ZW-711771	SPACER
1-49	MB-711772	BELT COUNTER
1-50	BM-711773	MOTOR ASSY
1-51	ES-711774	SW TACT
1-52	ML-711776	REC DETECT LEVER ASSY
1-53	TC-706389	SPACER

2. PRE AMP P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1	BA-T2054C050A	PC PRE AMP BLK HX-1
	PRE AMP P.C BOARD	
2-IC1	EI-332425	IC TK11002
2-IC2	EI-305456	IC TC4049UBC
2-IC3	EI-304657	IC TC4011BP
2-IC4	EI-306009	IC LM1111A
2-TR1,2	ET-332422	TR 2SB774 Q,R,S
2-TR3	ET-309334	TR 2SC458 C,D
2-TR4to7	ET-332424	⚠ TR 2SD1111 AKAI
2-TR8to10	ET-332424	TR 2SD1111 AKAI
2-TR12,13	ET-603257	TR 2SC1312S G,H
2-TR14	ET-309334	TR 2SC458 C,D
2-TR15	ET-309353	⚠ TR 2SC2274K E,F
2-TR16	ET-309885	TR 2SA1115 F
2-TR17	ET-328437	TR 2SD1012-V F,G
2-TR19	ET-309334	TR 2SC458 C,D
2-TR20,21	ET-309353	TR 2SC2274K E,F
2-TR22	ET-317919	⚠ TR 2SC1061 C,D
2-TR23to26	ET-309334	TR 2SC458 C,D
2-TR28	ET-332421	TR 2SD1010 R,S
2-D1to6	ED-560913	D SILICON V 1S2473VE
2-D7	ED-317594	D SILICON H 1S2473HL F12
2-D8to13	ED-560913	D SILICON V 1S2473VE
2-D14	ED-323979	D SILICON W03B F12 100/1.0A
2-D15	ED-560913	D SILICON V 1S2473VE
2-D16,17	ED-323979	D SILICON W03B F12 100/1.0A
2-D20	ED-322982	D GERMA V 1S188FM-1-LR F07
2-D21to23	ED-560913	D SILICON V 1S2473VE
2-D24	ED-322982	D GERMA V 1S188FM-1-LR F07
2-D26	ED-560913	D SILICON V 1S2473VE
2-D27,28	ED-323979	D SILICON W03B F12 100/1.0A
2-D29,30	ED-328605	D GERMA H 1S188FM-1-LH S12
2-D31,32	ED-560913	D SILICON V 1S2473VE
2-D35	ED-560913	D SILICON V 1S2473VE
2-J5	EJ-349149	PHONE J HLJ0523-320 2×3P
2-J6	EJ-349148	PHONE J 3P HLJ0628-024 6.3
2-SW1	ES-321274	SW LEVER 63349 2-06-03S
2-SW2	ES-336781	SW LEVER 00430540 2-04-03S
2-SW5	ES-332414	SW SOLENOID EMR-213007 30V 2S
2-VR2	EV-336807	VR ROTARY 16P20×2K 1Z104
2-VR4	EV-342942	R S-FIX H H0811C345A 3P 503
2-VR5	EV-342940	R S-FIX H H0811C344A 3P 203
2-VR6	EV-342939	R S-FIX H H0811C313A 3P 103
2-VR7	EV-342940	R S-FIX H H0811C344A 3P 203
2-VR8	EV-342941	R S-FIX H H0811C330A 3P 303
2-VR9	EV-338467	R S-FIX H TM8K 3P 0.30W 104
2-VL1	EO-321336	COIL VARI 1 FE002 10MH
2-L1	EO-330239	COIL FIX 1 FL09H 390UH J
2-T1	EO-332420	COIL OSC 1 0365-047 100KHZ
2-FL1	EO-315758	COIL TUN 1 100S-431 100.00KHZ
2-FL3	ER-328490	FILTER DB D07-001K 19KHZ
2-FL4	ER-328491	FILTER DB D07-003K 100KHZ
2-FR1,2	ER-307565	⚠ R FUSE ERD2FC S10 1/4W 6R8J
2-C14	EC-306988	C STY V F05 500 331J 50DC
2-C16	EC-306980	C STY V F05 500 221J 50DC
2-C21	EC-306980	C STY V F05 500 221J 50DC
2-C27	EC-306438	C STY V F05 500 101J 50DC
2-C53	EC-326138	C PP V F10 APH 182J 630DC
2-C65	EC-316150	C STY V F05 500 821J 50DC
2-C68	EC-341675	D PP V APS 223K 100DC
	VOLUME P.C BOARD	
2-VR3	EV-348314	VR ROTARY 16P20×3C A503
	DETECTOR P.C BOARD	
2-PH1	ET-311977	PHOTO SENSOR SPI-201

3. OPERATION P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
3-SW1to6	ES-336780	SW TACT KHH10902
3-D1	ED-310584	D LED GL9PR2 RED

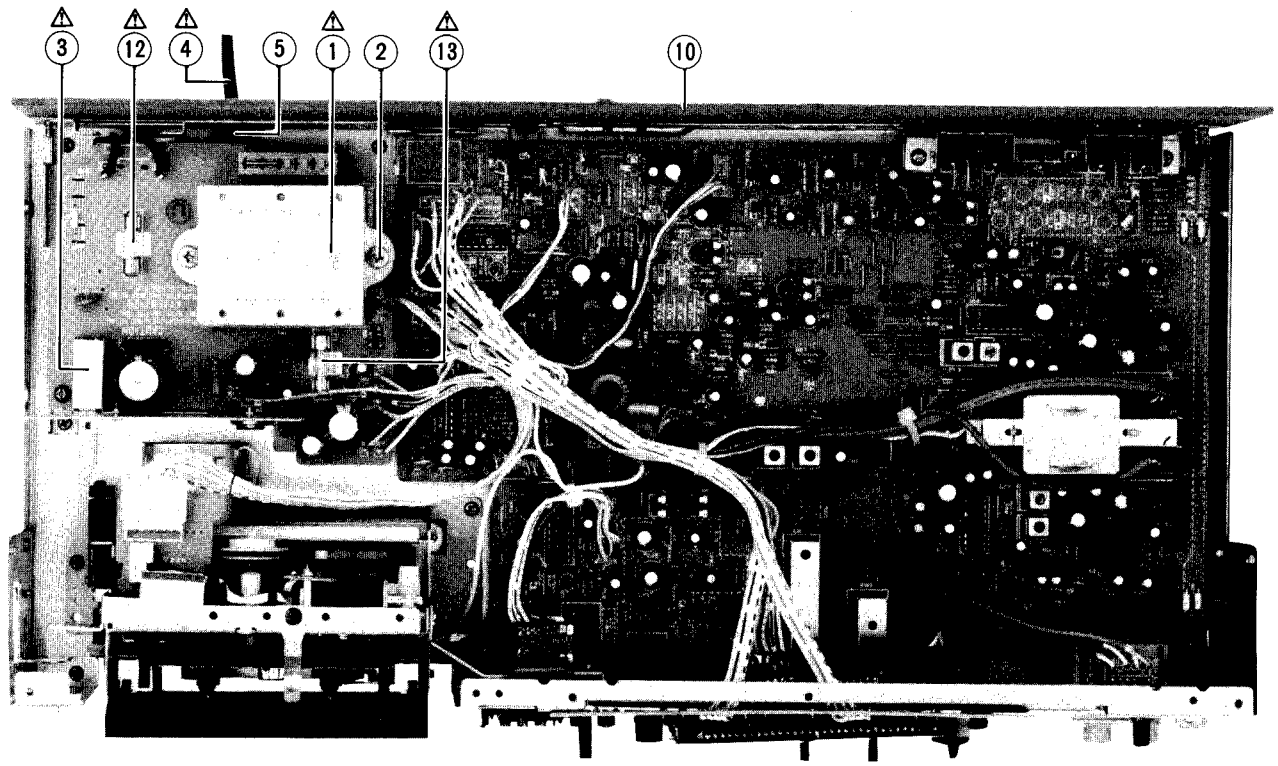
4. METER P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
4-IC1	EI-315799	IC HA12019
4-IN1	EM-332427	IND FL BG-96Z GRAPH

5. POWER SUPPLY P.C BOARD BLOCK

PRE. NO.	PARTS NO.	DESCRIPTION
5-IC1	EI-336759	⚠ IC TA78L008AP
5-TR1	ET-200505	TR 2SC2603 E,F
5-TR2	ET-317919	⚠ TR 2SC1061 C,D
5-D1,2	ED-330319	⚠ D SILICON DBA10B 100/1.0A
5-D3	ED-337779	⚠ D ZENER V HZ20S7 1
5-VS1	EJ-283140	⚠ SOCKET SELECTER X-I7238 6P (U ONLY)
5-C1U	EC-320548	⚠ C CE V F 103Z 250AC (U,C,A)
5-C1E	EC-330308	⚠ C MMY V ECQUF 103M 250AC (E,V,B,S)

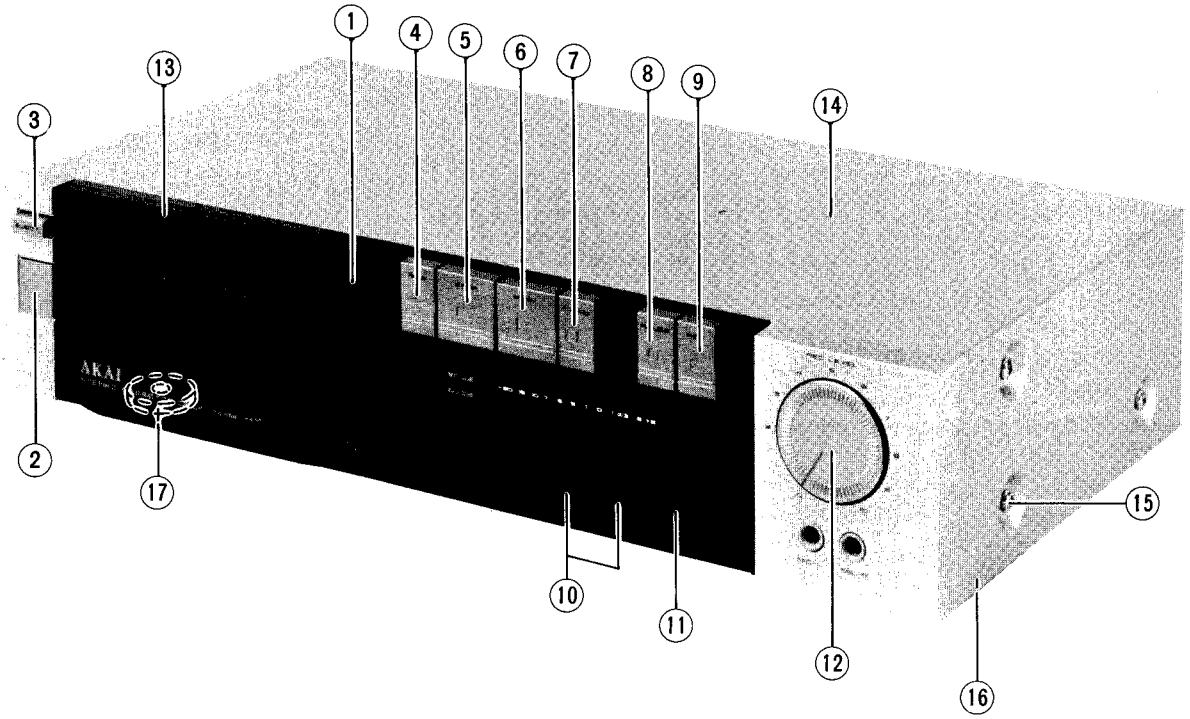
ASSEMBLY BLOCK



6. ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1U	BT-332228	⚠ TRANS POWER T2028 (U) (T1)
6-1C	BT-332227	⚠ TRANS POWER T2028(C,A)(T1)
6-1E	BT-332229	⚠ TRANS POWER T2028(E,V)(T1)
6-1B	BT-332230	⚠ TRANS POWER T2028(B,S)(T1)
6-2	ZS-312116	ST BID40×20STL CMT
6-3	ES-348998	⚠ SW PUSH SDL1P 01-1 (SW1)
6-4U	EW-306428	⚠ AC CORD 2 CORES KP-700A, VFF U/T (U)
6-4C	EW-305691	⚠ AC CORD 2 CORES KP-8, SPT-1 UC (C,A)
6-5	EZ-631945	STRAIN RELIEF SR-4N-4 (U,C,A)
6-6x	EJ-310567	⚠ SOCKET INLET 0378PC-GS E 2P (J1) (E,V,B,S)
6-7x	EJ-310567	⚠ AC CORD 2 CORES KP-419C/KS-15 E (E,V)
6-8x	EW-322400	⚠ AC CORD 2 CORES KS-15/GTBS-2F B (B)
6-9x	EW-322401	⚠ AC CORD 2 CORES KP-560/KS-15 S (S)
6-10U	SP-348360A	PANEL REAR BOARD HX-1 (U)
6-10C	SP-348360C	PANEL REAR BOARD HX-1 (C,A)
6-10E	SP-34360F	PANEL REAR BOARD HX-1 (E,V)
6-10B	SP-348360G	PANEL REAR BOARD HX-1 (B,S)
6-11x	ZW-305013	RV POP32 (A ONLY)
6-12U	EF-327103	⚠ FUSE TSC A 250V 0.50A(F2)(U)
6-12C	EF-309390	⚠ FUSE TSC 125V 0.50A(F2)(C,A)
6-12E	EF-593706	⚠ FUSE SEMKO T 250V 0.50A (F2) (E,V,B,S)
6-13U	EF-306124	⚠ FUSE TSC A 250V 0.63A(F3)(U)
6-13C	EF-305703	⚠ FUSE TSC 125V 0.63A (F3)(C,A)
6-13E	EF-601942	⚠ FUSE SEMKO T 250V 0.63A (F3) (E,V,B,S)

FINAL ASSEMBLY



7. FINAL ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
7-1	BD-T2054C025A	PANEL FRONT BLK HX-1
7-1P	BD-T2054C025B	PANEL FRONT BLK HX-1-P
7-1S	BD-T2054C025C	PANEL FRONT BLK HX-1-S
7-2	SK-343017C	KNOB POWER (2)
7-2P	SK-343017D	KNOB POWER (2)-P
7-3	SK-345376A	KNOB EJECT
7-3P	SK-345376B	KNOB EJECT-P
7-4	SK-345377A	KNOB REW
7-4P	SK-345377B	KNOB REW-P
7-5	SK-345377C	KNOB STOP
7-5P	SK-345377D	KNOB STOP-P
7-6	SK-345377E	KNOB PLAY
7-6P	SK-345377F	KNOB PLAY-P
7-7	SK-345377G	KNOB FF
7-7P	SK-345377H	KNOB FF-P
7-8	SK-345377J	KNOB PAUSE
7-8P	SK-345377K	KNOB PAUSE-P
7-9	SK-345377L	KNOB REC
7-9P	SK-345377M	KNOB REC-P
7-10	SK-332590D	KNOB SWITCH (A-4)
7-10S	SK-332590B	KNOB SW (A-2) (S)
7-11	SK-332591E	KNOB VOLUME (A-5)
7-11S	SK-332591D	KNOB VR (A-4) (S)
7-12	SK-345375A	KNOB VOLUME
7-12P	SK-345375C	KNOB VOLUME-P

REF. NO.	PARTS NO.	DESCRIPTION
7-13	BD-B345373	LID PANEL PART
7-13S	BD-B345373B	LID PANEL-S PART
7-14	SP-332593C	COVER UPPER (B)
7-14P	SP-332593B	COVER UPPER-P
7-15	ZS-341959	ST BID40×06STL NI3
7-15P	ZS-341960	ST BID40×06STL BNI
7-16	SA-202118	FOOT
7-17	SA-336217	FOOT

SYMBOL FOR COLOR VARIATION

NONE – STANDARD
P – PEARL SHADOW
S – SILVER

INDEX

PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.
BA-T2054C050A	2-1	EP-711751	1-30	SK-332590D	7-10		
BB-348278	1-1	EP-711758	1-36	SK-332591D	7-11S		
BD-B345373	7-13	ER-307565	2-FR1	SK-332591E	7-11		
BD-B345373B	7-13S	ER-307565	2-FR2	SK-343017C	7-2		
BD-T2054C025A	7-1	ER-328490	2-FL3	SK-343017D	7-2P		
BD-T2054C025B	7-1P	ER-328491	2-FL4	SK-345375A	7-12		
BD-T2054C025C	7-1S	ES-321274	2-SW1	SK-345375C	7-12P		
BF-711770	1-47	ES-332414	2-SW5	SK-345376A	7-3		
BL-711739	1-19	ES-336780	3-SW1	SK-345376B	7-3P		
BM-711773	1-50	ES-336780	3-SW2	SK-345377A	7-4		
BR-711730	1-11	ES-336780	3-SW3	SK-345377B	7-4P		
BR-711732	1-12	ES-336780	3-SW4	SK-345377C	7-5		
BT-332227	6-1C	ES-336780	3-SW5	SK-345377D	7-5P		
BT-332228	6-1U	ES-336780	3-SW6	SK-345377E	7-6		
BT-332229	6-1E	ES-336781	2-SW2	SK-345377F	7-6P		
BT-332230	6-1B	ES-348998	6-3	SK-345377G	7-7		
EC-306438	2-C27	ES-711774	1-51	SK-345377H	7-7P		
EC-306980	2-C16	ET-200505	5-TR1	SK-345377J	7-8		
EC-306980	2-C21	ET-309334	2-TR3	SK-345377K	7-8P		
EC-306988	2-C14	ET-309334	2-TR14	SK-345377L	7-9		
EC-316150	2-C65	ET-309334	2-TR19	SK-345377M	7-9P		
EC-320548	5-C1U	ET-309334	2-TR23	SP-332593B	7-14P		
EC-326138	2-C53	ET-309334	2-TR24	SP-332593C	7-14		
EC-330308	5-C1E	ET-309334	2-TR25	SP-348360A	6-10U		
EC-341675	2-C68	ET-309334	2-TR26	SP-348360C	6-10C		
ED-310584	3-D1	ET-309353	2-TR15	SP-348360F	6-10E		
ED-317594	2-D7	ET-309353	2-TR20	SP-348360G	6-10B		
ED-322982	2-D20	ET-309353	2-TR21	SP-711723	1-4		
ED-322982	2-D24	ET-309885	2-TR16	TC-706389	1-53		
ED-323979	2-D14	ET-311977	2-PH1	TC-706398	1-32		
ED-323979	2-D16	ET-317919	2-TR22	TC-706406	1-2		
ED-323979	2-D17	ET-317919	5-TR2	ZG-706374	1-3		
ED-323979	2-D27	ET-328437	2-TR17	ZG-706378	1-8		
ED-323979	2-D28	ET-332421	2-TR28	ZG-711737	1-17		
ED-328605	2-D29	ET-332422	2-TR1	ZG-711740	1-20		
ED-328605	2-D30	ET-332422	2-TR2	ZG-711741	1-21		
ED-330319	5-D1	ET-332424	2-TR4	ZG-711744	1-23		
ED-330319	5-D2	ET-332424	2-TR5	ZG-711746	1-25		
ED-337779	5-D3	ET-332424	2-TR6	ZG-711748	1-27		
ED-560913	2-D8	ET-332424	2-TR7	ZG-711750	1-29		
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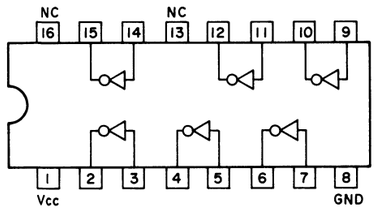

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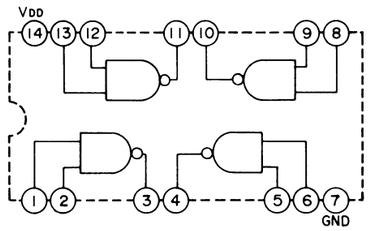

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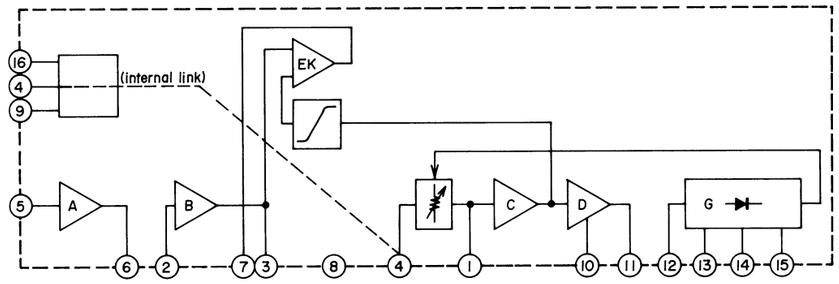

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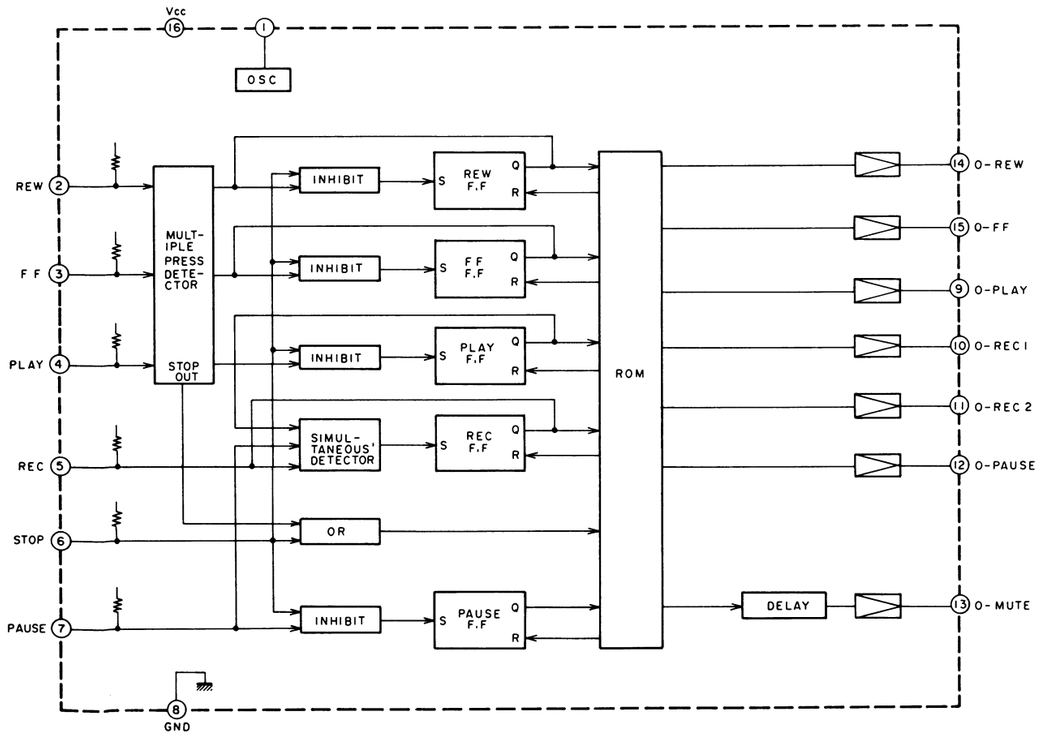

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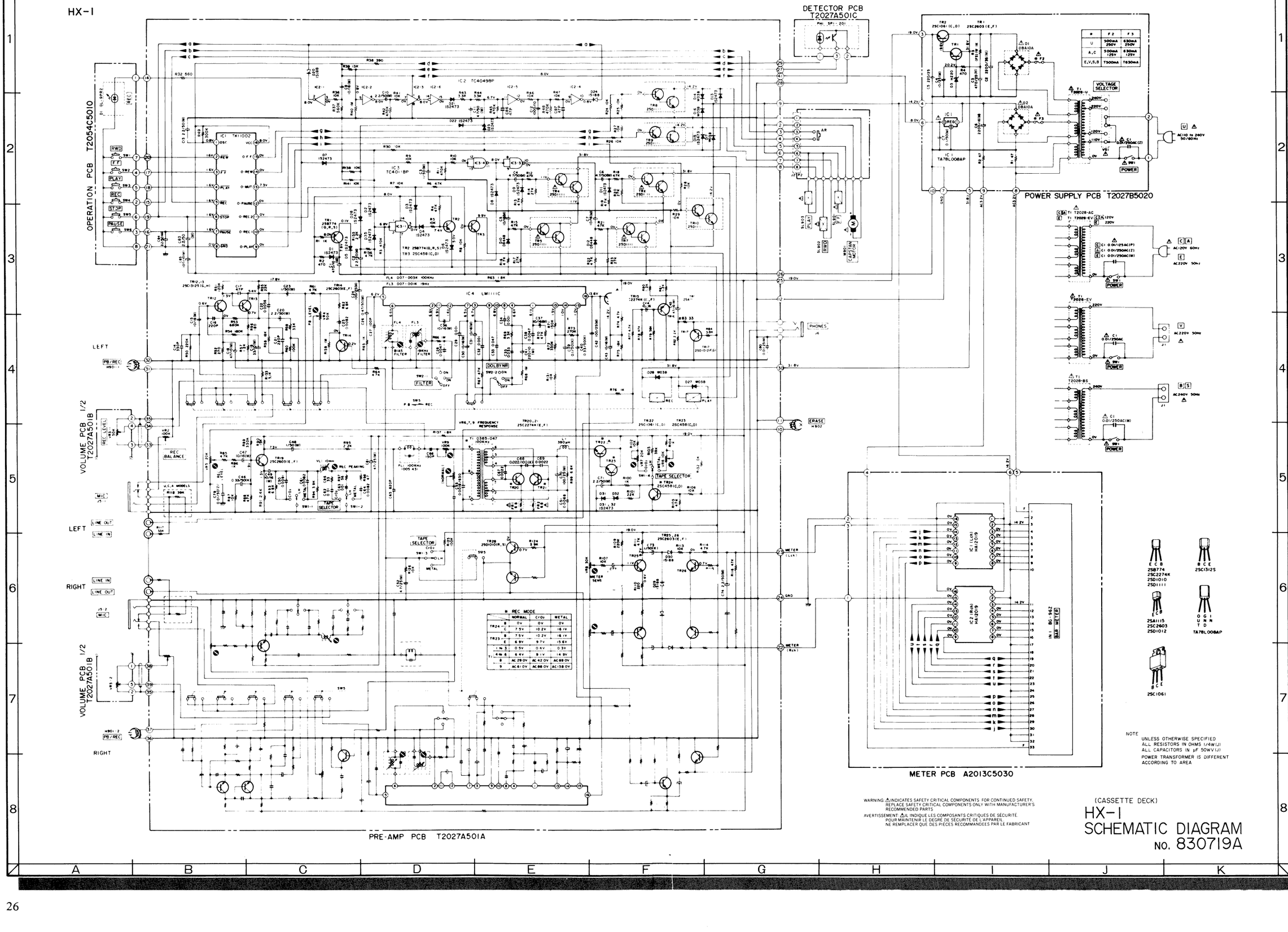

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)
POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

(CASSETTE DECK)
HX-1
SCHEMATIC DIAGRAM
NO. 830719A